PRIMETALS TECHNOLOGIES

BELOW-THE-HOOK LIFTING DEVICES

DESIGN, MANUFACTURE, UPGRADE, REPAIR, FIELD INSPECTION, AND RECONDITION

YOUR EXPERIENCED LOCAL SUPPLIER OF WORLD-CLASS SOLUTIONS FOR THE METALS INDUSTRY

For over three decades, Primetals Technologies has been a reliable, local source for the engineering, manufacturing, and maintaining a wide range of below-the-hook lifting devices. To keep pace with growing demand and to better serve our customers, we have recently expanded our capabilities at our workshop facilities in Benton Harbor, Michigan, and New London, Ohio, USA.

EXPERIENCE/CAPABILITIES

Our full-service manufacturing and reconditioning operations in Benton Harbor and New London provide comprehensive services for below-the-hook material handling devices. These include engineering and design, product enhancements, failure analysis, remanufacturing, upgrades, rebuilds, and fleet maintenance programs. Primetals Technologies is a full-service supplier of material handling solutions for the metals industry with a focus on safety, reliability, and extended service life.

For more than 15 years, our three AWS-Certified Weld Inspectors have delivered proven results in safety, reliability, and service life.

CAPABILITIES

- Engineering and design
- Manufacturing
- Product enhancements
- Inspection
- Failure analysis
- Remanufacturing
- Rebuilds
- Upgrades
- Fleet management programs
- Spare parts management programs

MANUFACTURING CAPABILITIES
OVER TWO DECADES OF EXPERIENCE MANUFACTURING AND REPAIRING BELOW-THE-HOOK LIFTING DEVICES

40-ton slab tongs before remanufacturing

40-ton slab tongs after remanufacturing

MANUFACTURING CAPABILITIES

As an original equipment manufacturer, Primetals Technologies offers true lifecycle support. We can provide you with a unique range of products and services to maximize mill utilization and productivity over the long term.

Examples range from the most up-to-date equipment designs for maximum performance to spare parts that reflect the latest manufacturing technologies.

RECONDITIONING, REBUILDING, AND UPGRADING

How can you get more out of your existing equipment? Which innovations make sense to maintain a competitive performance? Our reconditioning, rebuilding, and upgrade services provide attractive answers to these questions — for your entire portfolio of mill equipment.

RECONDITIONING/REBUILDING/UPGRADING OF EQUIPMENT INCLUDES:

- Equipment assessment in advance
- Advanced study of upgrade opportunities
- Implementation of the latest technologies

MAIN BENEFITS

- Quick turnaround to meet all mill schedule requirements
- Maximum accuracy of equipment rebuilds
- Minimized shutdown times through flexible work-cycle times, training maintenance staff during site work
- Maximized performance of critical machinery

10-ton billet lifter

Coil tongs

SLAB TONGS

Primetals Technologies slab tongs can lift single or multiple slabs securely without marking or scratching the product.

TECHNICAL DATA

Capacity	Up to 125 tons
Load width	24”–110”
Weight	1,000–60,000 lbs.

ROLL TONGS

Available in single and multi-leg diameters, Primetals Technologies roll tongs are designed to lift a specific range of roll sizes.

TECHNICAL DATA

Capacity	Up to 100 tons
Load diameter	12”–66”
Weight	5,000–45,000 lbs.

COIL TONGS

Primetals Technologies designs and manufactures coil tongs for the most demanding requirements. Our engineers can custom-design coil tongs to meet your specific needs.

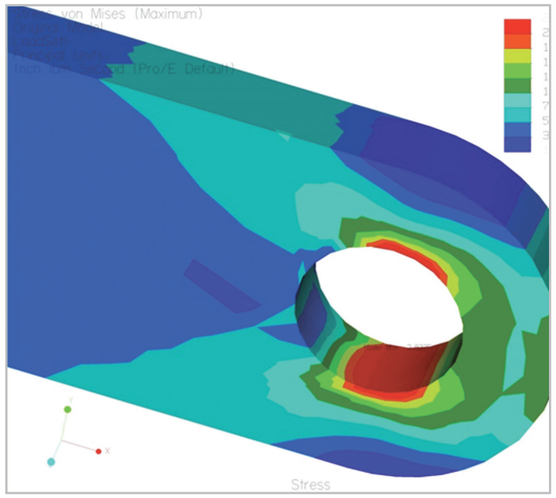
TECHNICAL DATA

Capacity	Up to 70 tons
Load width	12”–94”
Weight	1,000–12,000 lbs.

ENGINEERING CAPABILITIES

OVER THREE DECADES OF EXPERIENCE DESIGNING, UPGRADING, AND CERTIFYING BELOW-THE-HOOK LIFTING DEVICES

100-ton hoist operated slab tong



FEA analysis of lift device bore

FLEET STANDARDIZATION

By standardizing similar lifting devices, we can minimize the design variances between devices and reduce the required spares.

FEA ANALYSIS

Lifting devices are subject to extreme forces during operation. Bores, in particular, undergo intense stress due to high-tension loads. Primetals Technologies engineers can conduct an FEA analysis to determine whether thickening the lever or welding a boss to that area would be a more economical solution for increasing the lifespan of your equipment.

Whether we're designing new devices or conducting failure analysis, we prioritize the material and structural integrity of your components. That way, you can be confident in your equipment's ability to withstand the loads it was designed for.

CERTIFICATION OF RATED CAPACITY

- BTH-1 latest specification and/or 3:1 designed safety factor
- Upgrades and recertification, for example, from 30-ton to 35-ton capacity
- Cycle counters
- Coil protection
- Atmospheric protection, such as a heat shield

REFERENCE EXAMPLE

- Standardize 100-ton slab tong top beam
- Upgrade to bottom beam sheave assembly
- Faster turnaround time
- Reduction of inventory

Bore repair / bushing replacement

New manufacturing

FLEET MANAGEMENT AND INSPECTION

Primetals Technologies can conduct periodic inspections based on the ASME B30.20 BTH safety standard for lifting devices to keep your equipment operating in peak condition. All inspections are OSHA-compliant and documented to provide the following benefits:

- Documented inventory of all lifting devices in each specified area
- Picture of the device for reference on each detail page
- Predefined condition code assigned to each lifting device
- Detailed information for each device with areas of concern
- Record of in-service performance provides evidence of unit longevity
- Monitoring and evaluation of all improvement trials

FLEET CUSTOMIZATION

We can improve unit longevity and performance by customizing lifting devices through design enhancements and controlled trials.

Problem

- High temperature causing deflection of the bottom beam

Solution

- Modified heat shield to minimize deflection
- Additional clearance in pin-to-bore fits to allow for pin expansion

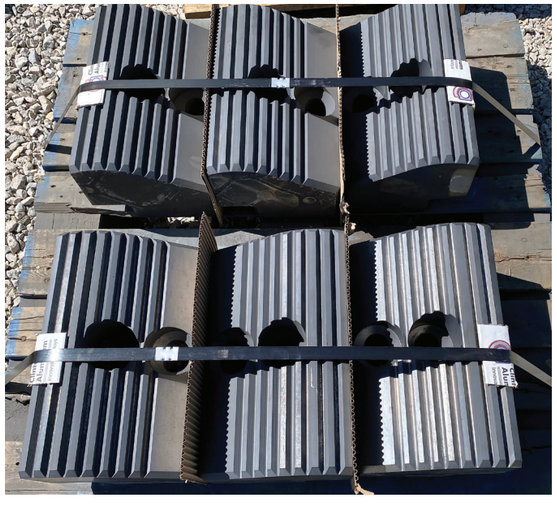
SERVICE CAPABILITIES

PROVIDING EXPERIENCED RELIABLE SERVICES AND THE HIGHEST QUALITY SPARES THROUGH OUR GLOBAL NETWORK OF FACILITIES

Customer-specific manufactured assemblies

Spare parts—precision machining

Spare parts—slab tong landing pads



Spare parts—slab tong points

SERVICES

What's unique about Primetals Technologies' service approach? First and foremost, we can quickly respond to your needs. Our global network of workshops and dedicated experts are at your service, following up on problems until they are resolved. Moreover, we provide full support for all the latest developments in material handling technology.

- Manufacturing and reconditioning of below-the-hook lifting devices
- Design and engineering
- Material handling fleet maintenance
- Product enhancements
- EAF aftermarket services
- Service and upgrades to existing equipment
- Spare part inventory and management
- Heavy fabrication
- Abrasive blasting
- Painting and detailing

INSPECTION AND TESTING

For more than 15 years, our three AWS-Certified Weld Inspectors have delivered proven results in safety, reliability, and service life.

- Magnetic particle and dye penetration testing
- Static liquid pressure testing
- Magnetic particle yokes
- Hardness portable testers
- Air pressure testing

SPARES

Managing your spare parts inventory is a time-critical, labor-intensive, and often costly. Failure to have the right spares when needed can lead to unplanned downtime. Supply chain issues can further increase the potential risk. Stocking all potential spare parts is costly to manage, and could also result in parts being damaged over time or never being put into production.

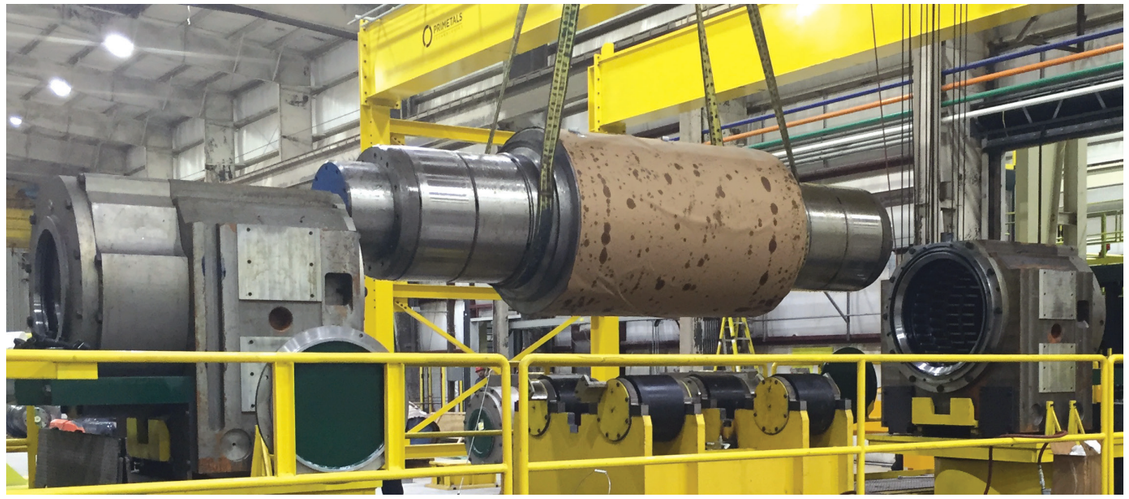
Primetals Technologies' spare parts management program ensures you receive the right part at the right time and for the right price. Our team will work with you to determine the program terms and options that best fit your needs.

With our spares, you will receive the latest innovations in materials and manufacturing methods. To help maintain and service your mill operation with critical spares, we have instituted parts warehouses in strategic locations worldwide—providing delivery 24 hours per day, 7 days per week, 365 days per year.

MAIN BENEFITS

- Maximized life span of all parts and their surrounding components
- Optimized overall performance
- Reduced inventory requirements

NEW INNOVATIONS
AUTOMATED CHOCKING SOLUTIONS— ENHANCING EFFICIENCY, SAFETY, AND PERFORMANCE



Automated mill roll chocking station

GAME-CHANGING TECHNOLOGY

Automated chocking stations are specifically designed to simplify and expedite removing and installing bearings and chocks onto steel mill rolls in flat, section, and rod rolling mills.

YOUR CHALLENGE

Chocking mill rolls can be a time-consuming and resource-intensive task, not to mention the inherent risks associated with traditional chocking methods. Using an overhead crane to support the chock is dangerous, costly, and sometimes inefficient due to crane availability during chock and bearing replacement. Relying solely on chains and straps can damage internal components and increases the likelihood of accidents. Further, when moving chocks to the roll, an overhead crane only supports the chock in the vertical direction. Horizontal adjustments require manual, hands-on, assistance.

OUR SOLUTION

Our automated chocking stations are tailor-made to suit your specific mill rolls. The benefits include faster component changeovers in the roll shop and significantly improved safety compared to traditional chocking methods.

We design chocking stations for various roll packages within the mill stands, such as back-up, intermediate, and work rolls. We offer both fixed and mobile configurations. These chocking stations can be operated using your mill's hydraulics or with self-contained hydraulic power units, which we can provide.

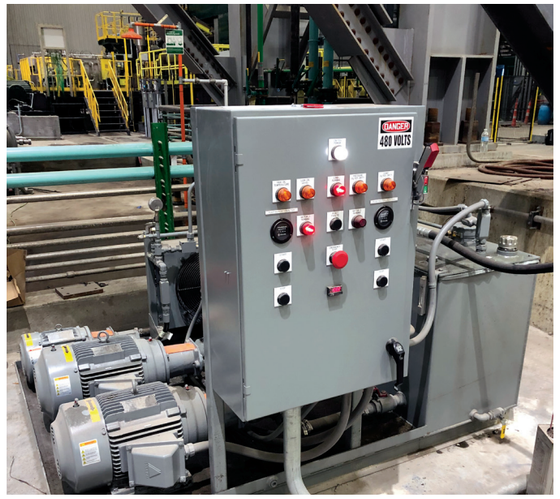
Additionally, our roll cradles have been designed with the ability to rotate the roll during chocking, reducing scratching on both the inner race and rollers within the bearings.

BACK-UP ROLL CHOCKING STATIONS

These chocking stations include two side extraction cars featuring a center cradle with a rotational option. Each end of the roll center line is equipped with a hydraulic power unit and control station. The extraction cars move vertically and in/ out of each roll end. These designs can be installed on custom foundations or the mill floor.

INTERMEDIATE AND WORK ROLL CHOCKING STATIONS

The stationary center rack comprises two side extraction cars equipped with individual hydraulic power units. Side extraction platforms travel along the center cradle, enabling the efficient exchange of chocks. Our chocking station allows for precise positioning of the chock to internal bearing clearances during operation.



Hydraulic power unit

Roll transfer car

HYDRAULIC POWER UNITS

A complete heavy-duty plug-and-go hydraulic power unit can be supplied for the chocking station. Fully wired with interlocks, this power unit can support all station functions. The station includes directional control valves, e-stops, etc., which assist in maneuvering heavy-duty hydraulic cylinders and motors for assembly/disassembly positioning.

CHOCK TILTERS

Our custom-designed chock tilters are versatile devices used for the inspection, assembly, positioning, and mounting/ dismounting of chocks. The objective is to rotate a chock removed from the roll by 90 degrees using a tilting device for bearing maintenance.

ROLL TRANSFER CARS

Designed for safe and efficient transfer of chock assemblies between areas in the mill, including the roll shop, our roll transfer cars ensure smooth and safe movement of heavy-duty assemblies and mill rolls.

MAIN BENEFITS

- Increase roll shop efficiency: Automated chocking stations significantly speed up the chocking process, resulting in faster component changeovers and improved overall efficiency.
- Improve employee safety: Our advanced safety features lead to improved working conditions, which help you protect your most valuable assets — your employees — from potential risks and accidents.
- Maximize mill utilization: By reducing the need for an overhead crane to support chocking and dechocking, you can free up the crane for other important tasks.
- Extend bearing life: Our chocking stations allow precise, level positioning of the chocks to internal bearing clearances during installation, helping to extend the lifespan of the bearings.
- Custom-designed solutions: We design our advanced chocking solutions specifically for your equipment, ensuring they meet your exact requirements. Likewise, we provide tailor-made solutions for your specific roll shop needs.

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